

I. Amendments to the Claims

1. (Cancelled).
2. (Currently Amended): The system according to claim 11 [[1]], wherein the fault detection circuit is configured to send a diagnostic signal to an audio system controller when a fault condition occurs.
3. (Currently Amended): The system according to claim 2, wherein the audio system controller stores the diagnostic signal in memory.
4. (Original): The system according to claim 11 [[1]], wherein the fault detection circuit is configured to generate the control signal if the audio output is above a threshold value.
5. (Original): The system according to claim 4, wherein the fault detection circuit includes a counter, and the fault detection circuit is configured to generate the control signal if the audio output exceeds the threshold for a predetermined number of samples.
6. (Currently Amended): The system according to claim 11 [[1]], wherein the fault detection circuit is configured to generate the control signal if the audio output is below a threshold value.

7. (Original): The system according to claim 6, wherein the fault detection circuit includes a counter, and the fault detection circuit is configured to generate the control signal if the audio output exceeds the threshold for a predetermined number of samples.

8. (Currently Amended): The system according to claim 11 [[1]], wherein the fault detection circuit is configured to average multiple samples to generate an average output and compare the average output to a threshold.

9. (Currently Amended): The system according to claim 11 [[1]], wherein the fault detection circuit is configured to delay for a predetermined time period before sampling once a fault condition has occurred.

10. (Currently Amended): The system according to claim 11 [[1]], further comprising:

a transistor coupled to the switch, the transistor being configured to simultaneously control multiple outputs of the switch simultaneously.

11. (Currently Amended): ~~The system according to claim 1, further comprising:~~

A system for detecting fault conditions in an audio system, the audio system including a remote audio generation device, an amplifier unit, and a wire harness connected therebetween, the system comprising:

an audio generation circuit;

a switch coupled to the audio generation circuit configured to selectively connect the audio generation circuit to the amplifier unit through the wire harness;

a fault detection circuit configured to monitor an audio output of the switch to detect fault conditions and provide a control signal to a control input of the switch to selectively disconnect the audio generation circuit from the wire harness;
and

a first capacitor in electrical series connection between the switch and the wire harness.

12. (Original): The system according to claim 11, further comprising:

a first resistor between the switch and a power source.

13. (Original): The system according to claim 12, further comprising:

a second resistor between the wire harness and the power source.

14. (Original): The system according to claim 13, further comprising:

a second capacitor between the wire harness and an electrical ground.

15. (Currently Amended): The system according to claim 11 [[1]], wherein the fault detection circuit is coupled to the audio outputs of the switch through the first capacitor.

16. (Cancelled).

17. (Currently Amended): The method according to claim 23 [[16]], further comprising providing a diagnostic signal to an audio system controller when a fault condition occurs.

18. (Original): The method according to claim 17, further comprising storing the diagnostic signal in memory.

19. (Currently Amended): The method according to claim 23 [[16]], wherein the fault detection circuit is configured to generate the control signal if the audio output is above a threshold value.

20. (Original): The method according to claim 19, wherein the fault detection circuit includes a counter, and the fault detection circuit is configured to generate the control signal if the audio output exceeds the threshold for a predetermined number of samples.

21. (Currently Amended): The method according to claim 23 [[16]], wherein the fault detection circuit is configured to generate the control signal if the audio output is below a threshold value.

22. (Original): The method according to claim 21, wherein the fault detection circuit includes a counter, and the fault detection circuit is configured to generate the control signal if the audio output exceeds the threshold for a predetermined number of samples.

23. (Currently Amended): The method according to claim 16,
A method for detecting fault conditions in an audio system, the audio
system including a remote audio generation device, an amplifier unit, and a wire
harness connected therebetween, the method comprising:
generating an audio signal using an audio generation circuit;
selectively connecting the audio generation circuit to the amplifier unit
through the wire harness using a switch;
monitoring an audio output of the switch to detect fault conditions; and
providing a control signal to a control input of the switch to selectively
disconnect the audio generation circuit from the wire harness; and
wherein monitoring the audio output includes averaging multiple samples to generate an average output and comparing the average output to a threshold.

24. (Currently Amended): The method according to claim 23 [[16]], further comprising delaying for a predetermined time period before sampling once a fault condition has occurred.